

IDUNELLA SMITHI, A NEW SPECIES OF MARINE
AMPHIPOD (GAMMARIDEA: LILJEBORGIIDAE)
FROM THE EAST COAST OF THE
UNITED STATES

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Abstract. — A new species of liljeborgiid amphipod, *Idunella smithi*, is described from Beesley's Point, Cape May County, New Jersey. The species is distinctive in having pleonites 1-3 dorsally smooth and urosomites 1-2 each with one dorsomedial tooth.

The cosmopolitan genus *Idunella* (sensu Karaman 1982; also Lazo-Wasem, in press) is currently represented by four species in northeastern North American waters. *Idunella barnardi* (Wigley) and *I. clymenellae* (Mills) are both thought to be commensals in the tubes of polychaetes in shallow waters (Bousfield 1973). The recently described *Idunella bowenae* Karaman is known from coastal waters to depths of 136 m (Karaman 1979, 1982; see also *I. sp. A.* in Watling 1979, fide Watling, pers. comm.). *Idunella aequicornis* (Sars) has also been recorded from shelf waters of North America (Watling 1979).

During the latter part of the 19th century, A. E. Verrill and S. I. Smith of the Yale Peabody Museum made numerous trips to collect invertebrates along the northeast coast of the United States. Professor Smith described many species of amphipods from this material; several species were described from the vicinity of Great Egg Harbor, New Jersey. The present paper describes a new species of *Idunella* in Peabody Museum material collected by Verrill and Smith from Beesley's Point, New Jersey.

Idunella smithi, new species
Figs. 1-3

Diagnosis. — Pleon segments 1-3 dorsally smooth, urosomites 1-2 each with 1 dorsomedian tooth. Gnathopod 1 larger than gnathopod 2; coxa 1 anteriorly produced, larger than coxa 2 or 3.

Description. — Female: Body strongly compressed, urosomites free, peraeon and pleonites 1-3 dorsally smooth, urosomites 1-2 with one dorsal tooth each. Coxa 1 anteriorly produced, larger than coxa 2 or 3. Coxa 4 subquadrate, posterior margin excavate. Pleonal epimera subquadrate, each hind corner produced into small tooth. Head, rostrum short, anterior cephalic lobe subrounded, inferior antennal sinus weak but distinct. Eyes medium, subovate, distinct in alcoholic specimens.

Antenna 1 less than 25% body length, extending to end of peduncle of antenna 2. Article 3 of peduncle small, less than 1/2 length of articles 1 or 2. Primary flagellum subequal to length of peduncle, composed of 11 articles, each provided with a cluster of setae and 1 aesthetasc; accessory flagellum composed of 5 articles.

Antenna 2 about 33% of body length, article 3 of peduncle less than 50% length

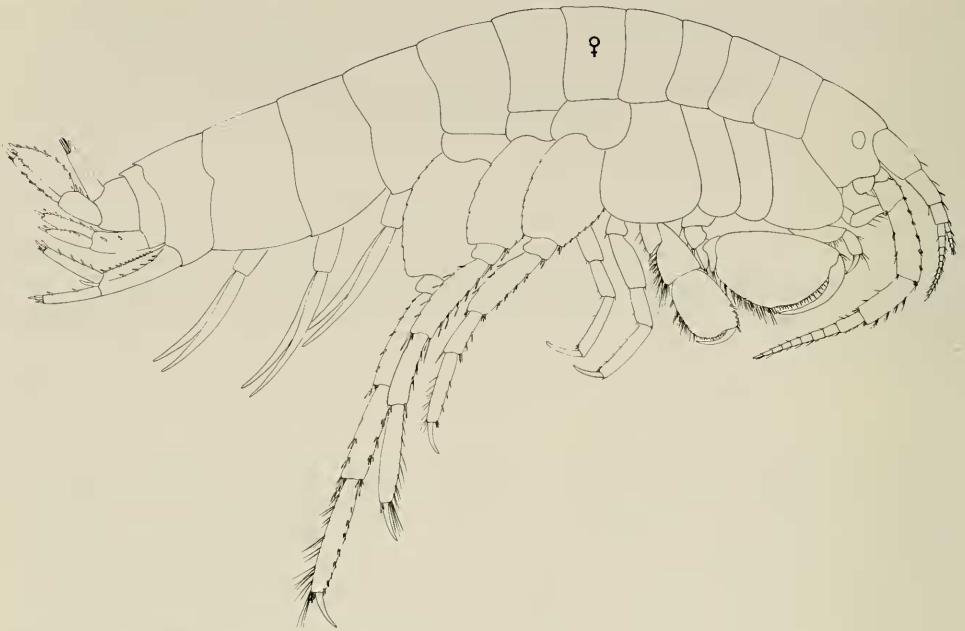


Fig. 1. *Idunella smithi*, female holotype.

of article 4. Flagellum composed of 10 articles, a little shorter than peduncle. Articles 2–5 of peduncle spinose at distal end.

Upper lip rounded, broader than long. Lower lip, inner lobes absent, outer lobes well developed, many small setae on distal margin.

Left mandible, incisor toothed, lacinia (accessory plate) 5-cusperate; margin adjacent to lacinia armed with 9 spines. Molar small, nontritulative; setulose and tuberculate. Palp strong, 3-articulate. Article 1 of palp greater than $\frac{1}{2}$ length of article 2, with a few setae at distal end. Article 2 longer than article 3, with several marginal and many distal setae. Article 3 falciform, with row of short setae along posterior margin and several long distal setae. Right mandible, incisor toothed, lacinia bicusperate, adjacent margin with 8 small spines.

Maxilla 1, inner plate small, with several plumose terminal setae. Outer plate with 8 stout curved spines, some serrate. Palp 2-articulate, normal. Article 2 with numerous terminal setae. Maxilla 2, inner plate shorter than outer plate, distally with plumose and simple setae, inner margin with sparse medial setae. Outer plate with numerous setae along distal inner margins. Maxilliped normal; outer plate much larger than inner plate, extending farther than $\frac{1}{2}$ length of palp article 2. Inside margin sparsely setose, distally armed with a few spines and several setae, some plumose. Palp composed of 4 articles, extending well beyond outer plate. Article 2 stout, setose along inner margin, longer than articles 3 and 4 combined. Article 3 with marginal and distal setae. Article 4 normal, a little shorter than article 3, with distal nail.

Gnathopod 1 subchelate, much larger than gnathopod 2. Article 2 with setae along both margins. Articles 3–5 short, with clusters of setae on posterior margins. Article 6 subovate, oblique, palm entire, convex, bearing row of straight or re-

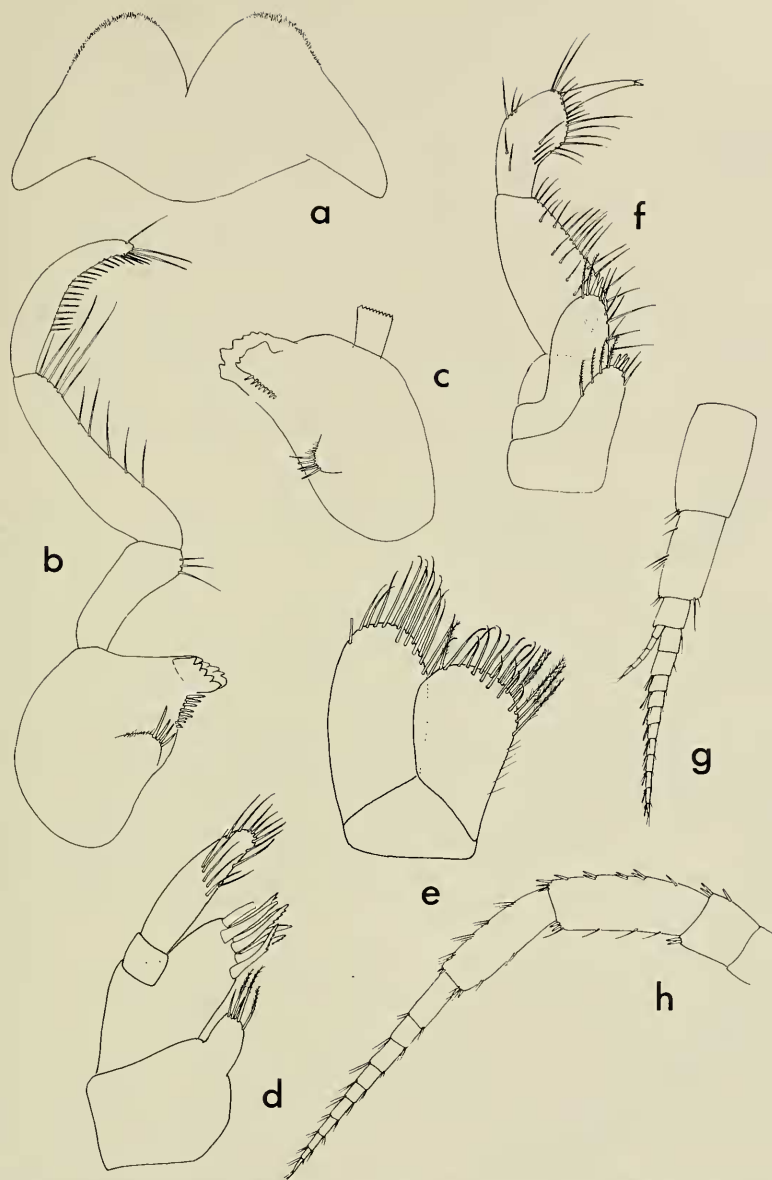


Fig. 2. *Idunella smithi*, female holotype: a, Lower lip; b, Left mandible; c, Right mandible; d, Maxilla 1; e, Maxilla 2; f, Maxilliped; g, Antenna 1; h, Antenna 2.

curved spines along inner and outer surface and row of plumose setae along inner margin. Posterior corner of palm with 2 small spines on outer margin and 1 large spine on medial surface. Facial setae sparse; posterior margin with several clusters of setae. Gnathopod 2 subchelate, anterior and posterior margin of article 2 with a few setae. Distal lobe of article 4 with cluster of spines. Article 5 slightly shorter than article 6, posterior margin setose. Article 6 longer than wide, subrectangular. Palm entire, transverse, convex, ornamentation as in gnathopod 1; clusters of

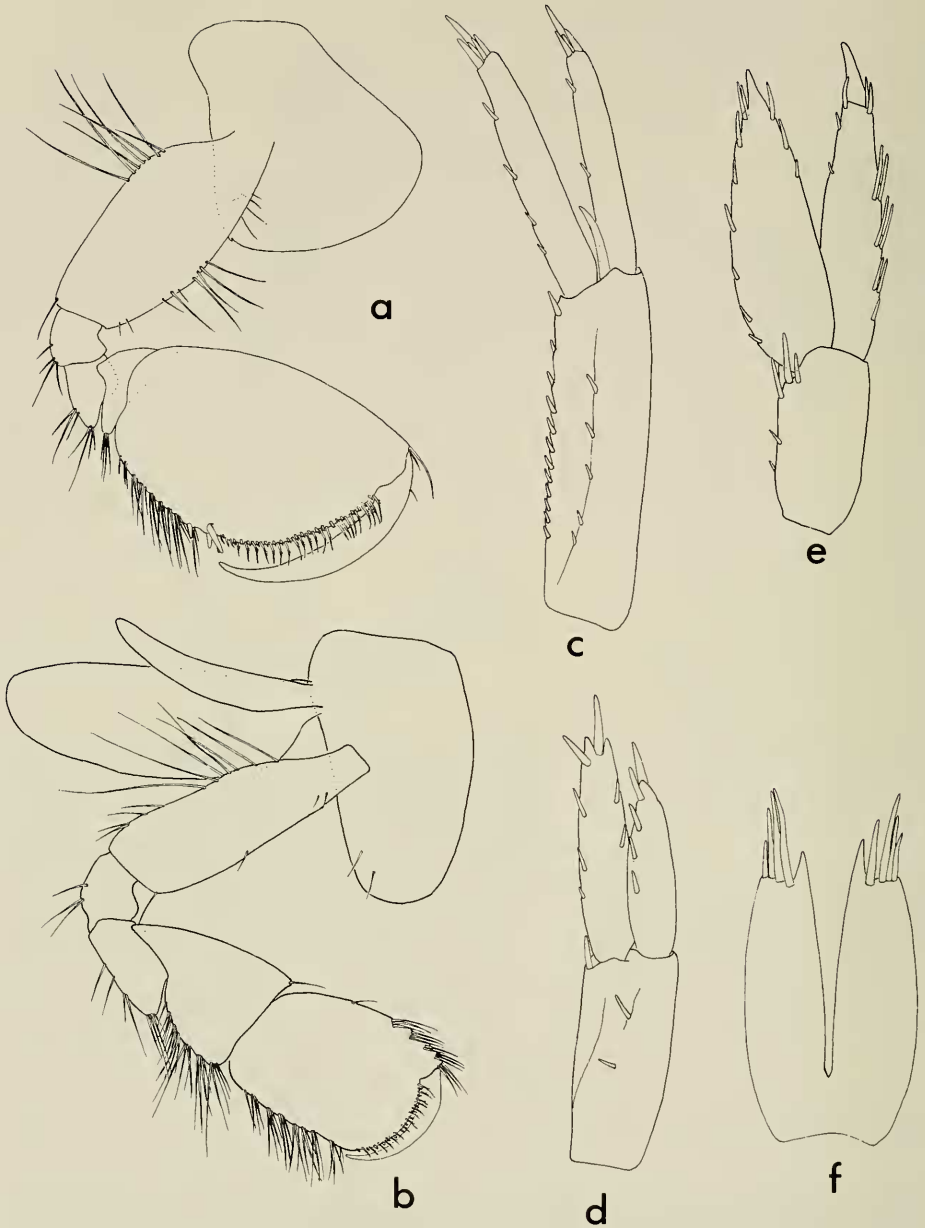


Fig. 3. *Idunella smithi*, female holotype: a, Gnathopod 1; b, Gnathopod 2; c, Uropod 1; d, Uropod 2; e, Uropod 3; f, Telson.

setae extending back along 80% of palmar margin. Dactyl closing against entire margin of palm.

Peraeopods 3–4 slender; peraeopod 4 slightly shorter than peraeopod 3. Article 2 of both peraeopods, anterior margin with few, and posterior margin with several setae. Article 3 short; article 4 longer than article 5, anterior margin with few

short spines. Article 6 longer than articles 4 or 5, weakly spinose along posterior margin. Article 7 approximately $\frac{1}{2}$ length of article 6.

Pleopods well developed, subequal. Rami of equal length, longer than peduncle, composed of 11–15 articles. Peduncles with 2 coupling hooks each.

Uropod 1 extending beyond apex of uropod 2 and beyond peduncle of uropod 3. Peduncle a little longer than rami, dorsal margin with row of short spines; several spines at distal end. Interramal spine extending about $\frac{1}{3}$ length of rami. Rami with few dorsolateral spines and apical spine cluster, outer shorter than inner ramus.

Uropod 2 extending a little beyond peduncle of uropod 3, peduncle subequal to rami with few lateral and distal spines. Outer ramus shorter than inner ramus, both rami with row of spines along dorsal margin and cluster of apical spines. Uropod 3 extending well beyond uropod 1. Peduncle equal in length to uropod 2, much shorter than rami. Rami lanceolate, subequal in length, outer margins spinose. Outer ramus narrower than inner ramus, 2-articulate, second article 25% length of first.

Telson deeply cleft, extending to middle of uropod 3 rami. Inner margin of lobes distally pointed, lobes with 4 terminal spines each.

Male. — Unknown.

Variability. — The primary flagellum of antenna 1 and the flagellum of antenna 2 in the paratype have fewer segments (8 and 9 respectively) than in the holotype (11 and 10 respectively). The basis (article 2) of peraeopod 5 is more broadly expanded in the paratype than in the holotype.

Material examined. — YPM No. 1238, Beesley's Point, Cape May County, New Jersey, A. E. Verrill and S. I. Smith, Apr 1871, 1 holotype female (10.9 mm). — YPM No. 8060, Beesley's Point, Cape May County, New Jersey, A. E. Verrill and S. I. Smith, Apr 1871, 1 paratype female (8.8 mm).

Etymology. — This species honors Professor S. I. Smith of the Yale Peabody Museum, who contributed much to our knowledge of North American amphipod systematics.

Remarks and discussion. — *Idunella smithi* is similar to *I. bowenae* in the arrangement of dorsal teeth on the urosome. Both species have one dorsomedian tooth each on urosomites 1 and 2. Furthermore, the shape and form of the gnathopods (females) is quite similar between the two species. *Idunella smithi*, however, lacks the dorsomarginal teeth present on pleon segment 3 of *I. bowenae*. The dorsal tooth arrangement of *I. smithi*, i.e., 1 tooth each on urosomite 1 and urosomite 2, is unique with respect to all other *Idunella*. Also, the telson of *I. bowenae* has fewer apical spines (2 per lobe) than is found on *I. smithi* (4 per lobe). *Idunella barnardi* and *I. clymenellae*, also known from northeastern U.S. waters, are easily distinguished from *I. smithi* by their smooth urosomes. Furthermore, *I. barnardi* and *I. clymenellae* both have gnathopod 2 larger than gnathopod 1 (males and females) whereas the reverse is true (e.g., gnathopod 2 smaller than gnathopod 1) in *I. smithi*.

That only two specimens of *I. smithi* are known (none have been collected since the original material) is unfortunate. Also, the lack of any habitat data or more precise locality information allows one only to speculate on its ecology; still, some generalizations can be made. *Idunella smithi* is probably uncommon and most likely inhabits water below the tide marks, otherwise casual collecting would

undoubtedly have turned up other specimens prior to these. Generally, major amphipod surveys have not concentrated on New Jersey waters; this may in part explain why *I. smithi* has been overlooked for so long. Furthermore, Beesley's Point, New Jersey may represent an extreme northerly occurrence of *I. smithi*; this species may be more common south of New Jersey.

Acknowledgments

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